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*cc*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: **Sommers et al.**  
Application No.: **10/753,580** Examiner: **Daniel Previl**  
Filed: **January 8, 2004** Docket No.: **GLOZ 2 00153**  
For: **METHOD AND APPARATUS FOR TRI-COLOR RAIL SIGNAL SYSTEM WITH CONTROL**

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Respectfully submitted,  
FAY, SHARPE, FAGAN,  
MINNICH & McKEE, LLP

Date

*4/27/06*

*[Signature]*  
\_\_\_\_\_  
Scott A. McCollister, Reg. No. 33,961  
Marina V. Zalevsky, Reg. No. 53,825  
1100 Superior Avenue, Seventh Floor  
Cleveland, OH 44114-2579  
216-861-5582

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BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND  
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In re the Application of Sommers et al.

Application No.: 10/753,580

Examiner: Daniel Previl

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For: **METHOD AND APPARATUS FOR TRI-  
COLOR RAIL SIGNAL SYSTEM WITH CONTROL**

**BRIEF ON APPEAL**

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Appeal from Group 2636  
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP  
1100 Superior Avenue – Seventh Floor  
Cleveland, Ohio 44114-2579  
Telephone: 216-861-5582  
Attorneys for Appellants

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal and the present application is GELcore LLC (Valley View, Ohio), by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 014880, Frame 0975.

II. STATEMENT OF RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-4, 7-14, 17-22 were finally rejected on November 28, 2005.

Claims 1-4, 7-14, and 17-22 are on appeal.

Claims 5, 6, 15, and 16 are canceled.

A correct copy of claims appears in the Appendix attached hereto.

IV. STATUS OF AMENDMENTS

No Amendment After Final Rejection has been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

**Claim 1** is directed to a signaling control device apparatus. A light source includes at least one LED and a light emitting surface. (Abstract, lines 1-2.) A sensor is set to detect an external light load directed to the light emitting surface and generate a control signal indicative of a presence of the external light load. (Abstract, lines 2-4.) When an electrical control system receives the control signal indicative of the presence of the external light load, the electrical control system triggers an increase in current being supplied to the at least one LED. (Para. 23.) The increased current is being

maintained for at least while the external light load presence is detected. (Abstract, lines 7-8.)

**Claim 4** is directed to a sensor which is positioned in a location remote from the printed circuit board. (Para. 22.)

**Claim 11** is directed to a method of controlling a signaling device. A light source includes at least one LED and has a light emitting surface. (Abstract, lines 1-2.) At least one sensor is set to detect an external light load directed to the light emitting surface. (Abstract, lines 2-4.) In response to detecting a presence of the external light load, a control signal indicative of detecting the light load is generated. (Para. 23, lines 1-5.) The control signal is received by an electrical control system. (Para. 23, lines 5-6.) An increase in current being supplied to the at least one LED is triggered. (Para. 23, lines 7-8.) The elevated current is maintained for at least while the light load is being present. (Abstract, lines 7-8.)

**Claim 21** is directed to continually adjusting a value of the elevated current based on the detected light load magnitude. (Para. 24.)

**Claim 22** is directed to positioning the signaling device on a sharp bend and orienting the remotely positioned sensor along the bend towards a direction of the external light load. (Para. 22.)

#### VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are presented for review:

ISSUE 1. Whether **Claim 1 and dependent claims 2-4 and 7-10** are properly rejected under 35 U.S.C. §102(b) as being anticipated by Marshall (U.S. Patent No. 6,445,139).

ISSUE 2. Whether **Claim 4** is properly rejected under 35 U.S.C. §102(b) as being anticipated by Marshall (U.S. Patent No. 6,445,139).

ISSUE 3. Whether **Claim 11 and dependent claims 12-14 and 17-22** are properly rejected under 35 U.S.C. §102(b) as being anticipated by Marshall (U.S. Patent No. 6,445,139).

ISSUE 4. Whether **Claim 21** is properly rejected under 35 U.S.C. §102(b) as being anticipated by Marshall (U.S. Patent No. 6,445,139).

ISSUE 5. Whether **Claim 22** is properly rejected under 35 U.S.C. §103(a) as being obvious over Marshall (U.S. Patent No. 6,445,139) in view of Pierpoint (U.S. Patent No. 4,273,999).

## VII. ARGUMENT

### Issue 1

Claims 1-4 and 7-10 are rejected under 35 U.S.C. §102(b) as being anticipated by Marshall.

The Examiner relies on Marshall to teach a signaling control device apparatus which has a light source including at least one LED and a light emitting surface; at least one sensor which is set to detect an external light load directed to the light emitting surface and generate a control signal indicative of a presence of the external light load; and an electrical control system which receives the control signal indicative of the presence of the external light load, triggers an increase in current being supplied to the at least one LED in response to the received signal, and maintains the increased current for at least while the external light load is present.

#### A. Claims 1-4 and 7-10 Are Not Anticipated By Marshall

Claims 1-4 and 7-10 are not anticipated by Marshall because each and every element as set forth and arranged in independent claim 1 is not found either expressly or impliedly in Marshall.

1. The Cited Prior Art does not Teach or Suggest all Limitations of Claim 1



- a. The sensor of Marshall is not set to detect an external light load directed to the light emitting surface of the light source

The Examiner relies on Marshall to teach that the sensor is set to detect an external light load directed to the light emitting surface of the light source. Marshall describes a sensor which senses the intensity of the LEDs. (Col. 2, lines 57-58.) Therefore, the sensor in Marshall does not sense an intensity of the light which externally shines at the light emitting surface of the light source, but rather senses the intensity of the LEDs themselves.

- b. The sensor of Marshall does not generate a control signal indicative of the presence of the external light load

The Examiner relies on Marshall to teach that the sensor generates a control signal indicative of the presence of the external light load. Marshall describes a sensor which senses the intensity of the LEDs and generates corresponding current signals for a controller. (Col. 2, lines 57-58, 60-61.) Therefore, the sensor in Marshall does not generate a control signal indicative of the presence of the light load external to the LEDs, but instead generates a control signal which corresponds to the sensed intensities of the individual LEDs.

- c. The controller in Marshall does not increase the current supplied to the LEDs responsive to the detection of the external light load

The Examiner relies on Marshall to teach that the control system generates increased current to be supplied to the LEDs in response to the control signal indicative of the presence of the external light load. Marshall describes a controller which receives the sensor signals and compares them with the desired settings for the LEDs. (Col. 2, lines 64-67.) Based on the comparison, the controller accordingly controls power regulators which control intensity of the respective LEDs. (Col. 3, lines 1-3.) Therefore, Marshall increases or decreases current supplied to the LEDs based on the measured intensity of the LEDs. Marshall does not increase the current supplied to the LEDs in response to the detection of the external light load.

- d. Marshall does not maintain the elevated current supplied to the LEDs while the external light load is present

The Examiner relies on Marshall to teach that the control system maintains an elevated current supplied to the LEDs while the external light load is present. Marshall describes a light system with a feedback which ensures that the light intensity of the LEDs is maintained at the constant level. (Col. 2, lines 64-67, Col. 3, lines 1-6, Col. 4, lines 26-27, 46-49, 60-61.) Thus, Marshall maintains a stability of the light output by increasing or decreasing the power supplied to the LEDs, based on the measured intensity of the separate LEDs. Marshall does not maintain an elevated current supplied to the LEDs for as long as the external light load is being detected by the sensor.

**B. Claims 1-4 and 7-10 are not Obvious Over Marshall**

Claims 1-4 and 7-10 are not obvious over Marshall because (1) the cited prior art does not teach or suggest all claim limitations as argued above; and (2) the cited prior art does not contain suggestion or motivation in the reference itself or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made, to modify the reference.

2. No motivation or suggestion to modify Marshall

a. Marshall is not analogous prior art

Marshall is not analogous prior art since it is not pertinent to the problem with which Applicants were concerned. A person having ordinary skill in the art would not reasonably be expected to solve the problem of regulating the light source by detecting the external light load by considering a reference dealing with regulating the light source by detecting the intensity of the light source itself.

b. No desirability to sense an external light load

Marshall is directed to providing a constant light output of the LED light source, as the LEDs tend to fail. For this reason, a feedback path includes measurements of

the LEDs intensity. There is no motivation or suggestion for one skilled in the art to modify Marshall to sense an external light load.

- c. No desirability to look into Marshall to periodically increase the intensity of the light source when the external light load is present

Marshall solves a problem of creating an illumination that is constant over time. Applicants describe how to periodically create an illumination of an increased intensity. One, skilled in the art, would be looking to Marshall to create a uniform light source with a constant light output. There is no motivation or suggestion in Marshall for one skilled in the art to modify Marshall to create a light source whose light output would have a higher intensity during time periods when an external light load is present.

- d. Marshall teaches away

As discussed above, Marshall is directed to sensing the intensity of the LEDs where the present application is directed to sensing the intensity of the external light load. Thus, Marshall regulates the output of light source based on the sensed intensity of the light source. One, skilled in the art, would be looking to Marshall to create a feedback control system in which a feedback is provided based on the sensed intensity of the light source.

In conclusion, Applicants maintain that (1) Marshall does not teach or suggest all limitations as set forth and arranged in claim 1, either expressly or impliedly, and (2) no motivation or suggestion to modify Marshall exists in Marshall or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made. Therefore, it is respectfully submitted that the rejection of claim 1 and dependent claims 2-4 and 7-10 is in error.

## **Issue 2**

Claim 4 is rejected under 35 U.S.C. §102(b) as being anticipated by Marshall.

The Examiner relies on Marshall to teach that a sensor is positioned in a location remote from the printed circuit board.

**C. Claim 4 is Not Anticipated by Marshall**

Claim 4 is not anticipated by Marshall because each and every element as set forth and arranged in claim 4 is not found either expressly or impliedly in Marshall.

1. Marshall does not teach or suggest all limitations of claim 4
  - a. The sensor of Marshall is not positioned remotely from the printed circuit board

The Examiner relies on Marshall to teach a sensor which is positioned in a location which is remote from the surface on which the LEDs are positioned. Figure 1 of Marshall shows the sensor which is positioned on the same surface as the LEDs. Figure 2 shows a schematic of electrical interconnections of the sensor and the electrical system. Nowhere does Marshall describe the remote positioning of the sensor, e.g. the positioning where the sensor is disposed remotely from the surface on which the LEDs are disposed.

In conclusion, Applicants maintain that because Marshall does not teach or suggest all limitations as set forth and arranged in claim 4, either expressly or impliedly, the rejection of claim 4 is in error.

**Issue 3**

Claims 11-14 and 17-22 are rejected under 35 U.S.C. §102(b) as being anticipated by Marshall.

The Examiner relies on Marshall to teach a method of controlling a signaling device, providing a light source including at least one LED and having a light emitting surface, setting at least one sensor to detect an external light load directed to the light emitting surface; in response to detecting a presence of the external light load, generating a control signal indicative of detecting the light load; receiving the control signal by an electrical control system; triggering an increase in current being supplied to

the at least one LED; and maintaining the elevated current for at least while the light load is present.

**D. Claims 11-14 and 17-22 are not Anticipated by Marshall**

Claim 11-14 and 17-22 are not anticipated by Marshall because each and every element as set forth and arranged in independent claim 11 is not found either expressly or impliedly in Marshall.

1. Marshall does not teach or suggest all limitations of claim 11

a. The sensor of Marshall is not set to detect an external light load directed to the light emitting surface of the light source

The Examiner relies on Marshall to teach that the sensor is set to detect an external light load directed to the light emitting surface of the light source. Marshall describes a sensor which senses the intensities of the LEDs. (Col. 2, lines 57-58.) Therefore, the sensor in Marshall does not sense an intensity of the light which externally shines at the light emitting surface of the light source, but rather senses the intensities of the LEDs themselves.

b. A control signal indicative of presence of the external light load is not generated in Marshall

The Examiner relies on Marshall to teach that the sensor generates a control signal indicative of the presence of the external light load. Marshall describes a sensor which senses the intensities of the LEDs and generates corresponding current signals for a controller. (Col. 2, lines 57-58, 60-61.) Therefore, the sensor in Marshall does not generate a control signal indicative of the presence of the light load external to the LEDs, but rather generates a control signal which corresponds to the sensed intensities of the LEDs.

c. The current supplied to the LEDS is not increased responsive to the detection of the external light load

The Examiner relies on Marshall to teach that the control system generates increased current supplied to the LEDs in response to the control signal indicative of

the presence of the external light load. Marshall describes a controller which receives the sensor signals and compares them with the desired settings for the LEDs. (Col. 2, lines 64-67.) Based on the comparison, the controller accordingly controls power regulators which control intensity of the respective LEDs. (Col. 3, lines 1-3.) Therefore, Marshall increases or decreases current supplied to the LEDs based on the measured intensities of the LEDs. Marshall does not increase the current supplied to the LEDs in response to the detection of the external light load.

d. The elevated current supplied to the LEDs is not maintained while the external light load is present

The Examiner relies on Marshall to teach that the control system maintains an elevated current supplied to the LEDs while the external light load is present. Marshall describes a light system with a feedback which ensures that the light intensity of the LEDs is maintained at the constant level. (Col. 2, lines 64-67, Col. 3, lines 1-6, Col. 4, lines 26-27, 46-49, 60-61.) Thus, Marshall maintains a stability of the light output by increasing or decreasing the current supplied to the LEDs, based on the measured intensity of the separate LEDs. Marshall does not maintain an elevated current supplied to the LEDs for as long as the external light load is being detected by the sensor.

**E. Claims 11-14 and 17-22 are not Obvious over Marshall**

Claims 11-14 and 17-22 are not obvious over Marshall because (1) the cited prior art does not teach or suggest all claim limitations as argued above; and (2) the cited prior art does not contain suggestion or motivation in the reference itself or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made, to modify the reference.

1. No motivation or suggestion to modify Marshall

a. Marshall is not analogous prior art

Marshall is not analogous prior art since it is not pertinent to the problem with which Applicants were concerned. A person having ordinary skill in the art would not reasonably be expected to solve the problem of regulating the light source by detecting the external light load by considering a reference dealing with regulating the light source by detecting the intensity of the light source itself.

b. No desirability to sense an external light load

Marshall is directed to providing a constant light output of the LED light source over time, as the LEDs can fail over time. For this reason, a feedback path includes measurements of the LEDs intensity. There is no motivation or suggestion for those skilled in the art to modify Marshall to sense an external light load.

c. No desirability to look into Marshall to periodically increase the intensity of the light source when the external light load is present

Marshall solves a problem of creating an illumination that is constant over time. Applicants describe how to create an illumination of a periodic increased intensity. One, skilled in the art, would be looking to Marshall to create a uniform light source with a constant light output. There is no motivation or suggestion in Marshall for one skilled in the art to modify Marshall to create a light source whose light output would have a higher intensity during time periods when an external light load is present.

d. Marshall teaches away

As discussed above, Marshall is directed to sensing the intensity of the LEDs where the present application is directed to sensing the intensity of the external light load. Thus, Marshall regulates the output of a light source based on the sensed intensity of the light source. One, skilled in the art, would be looking to Marshall to create a feedback control system in which a feedback is provided based on the sensed intensity of the light source.

In conclusion, Applicants maintain that (1) Marshall does not teach or suggest all limitations as set forth and arranged in claim 11, either expressly or impliedly, and (2) no motivation or suggestion to modify Marshall exists in Marshall itself or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made. Therefore, it is respectfully submitted that the rejection of claim 11 and dependent claims 12-14 and 17-22 is in error.

#### **Issue 4**

Claim 21 is rejected under 35 U.S.C. §102(b) as being anticipated by Marshall.

The Examiner relies on Marshall to teach continually adjusting a value of the elevated current based on the detected light load magnitude.

#### **F. Claim 21 is not anticipated by Marshall**

Claim 21 is not anticipated by Marshall because each and every element as set forth and arranged in claim 21 is not found either expressly or impliedly in Marshall.

1. Marshall does not teach or suggest all limitations of claim 21
  - a. The value of the elevated current in Marshall is not continually adjusted based on the measured magnitude of the external light load

As discussed above, Marshall senses the intensity of the LEDs of the light source. Marshall does not sense the intensity of the external light load which is directed to the light emitting surface of the light source. Therefore, Marshall does not adjust a current supplied to the LEDs based on the detected magnitude of the external light load. Because Marshall does not disclose either expressly or impliedly limitations of claim 21, Applicants submit that the rejection of claim 21 is in error.

#### **Issue 5**

Claim 22 is rejected under 35 U.S.C. §103(a) as being obvious over Marshall in view of Pierpoint.



The Examiner relies on Pierpoint to teach positioning the signaling device on a sharp bend; and orienting the remotely positioned sensor along the bend towards a direction of the external light load.

**G. Claim 22 is Not Obvious over Marshall in view of Pierpoint**

Claim 22 is not obvious over Marshall in view of Pierpoint because (1) the cited prior art does not teach or suggest all claim limitations; and (2) the cited prior art has not been shown to contain suggestion or motivation in the references themselves or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made, to modify the references or to combine the references teachings.

1. The cited art does not teach or suggest All Limitations of Claim 22

a. Light source of Pierpoint is not positioned on a sharp bend

Pierpoint describes a light source comprising luminaries 32, 34, 36 which provide artificial illumination over task areas within a work area. (Col. 3, line 10, claim 1.) Therefore, Pierpoint positions the luminaries to illuminate the task areas. Pierpoint does not position the luminaries on a sharp bend.

b. Pierpoint does not orient the sensor along the sharp bend

Pierpoint describes the sensor with three light detecting surfaces which are oriented on three different axes to detect the sun's rays at different angles. (Fig. 2, col. 4, lines 46-50.) Pierpoint does not teach orienting the sensor along the sharp bend.

2. No motivation or suggestion has been shown to modify or combine cited references

a. Marshall is not analogous prior art

Marshall is not analogous prior art since it is not pertinent to the problem with which Applicants were concerned. A person having ordinary skill in the art would not reasonably be expected to solve the problem of regulating the light source by detecting

the external light load by considering a reference dealing with regulating the light source by detecting the intensity of the light source itself.

b. No desirability has been shown to sense an external light load

Marshall is directed to providing a constant light output of the LED light source over time, as the LEDs can fail; thus reducing the total light output over time. For this reason, a feedback path includes measurements of the LEDs intensity. No motivation or suggestion has been shown to modify Marshall to sense an external light load and, based on such input, adjust the intensities of the LEDs.

c. No desirability has been shown to look into Marshall to periodically increase the intensity of the light source when the external light load is present

Marshall solves a problem of creating an illumination that is constant over time. Applicants describe how to periodically create an illumination of an increased intensity. One, skilled in the art, would be looking to Marshall to create a uniform light source with a constant light output. There is no motivation or suggestion in Marshall for one skilled in the art to modify Marshall to create a light source whose light output would have a higher intensity during time periods when an external light load is present.

d. Marshall teaches away

As discussed above, Marshall is directed to sensing the intensity of the LEDs where the present application is directed to sensing the intensity of the external light load. Thus, Marshall regulates the output of light source based on the sensed intensity of the light source. One, skilled in the art, would be looking to Marshall to create a feedback control system in which a feedback is provided based on the sensed intensity of the light source itself.

e. Pierpoint is not analogous art

Pierpoint is not analogous art since it is not pertinent to the problem with which Applicants were concerned. A person having ordinary skill in the art would not reasonably be expected to solve the problem of detecting the external light which comes from out of the sharp bend by considering a reference which requires three sensors to detect the sun light.

f. Modification of Marshall with Pierpoint will make Marshall unsatisfactory for its intended purpose

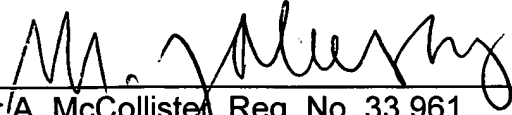
As discussed above, Marshall is directed to sensing the intensity of the LEDs and uses this input to regulate the output of the light source. Pierpoint is directed to sensing the sunlight. The combination of Marshall with Pierpoint will prevent Marshall from regulating the intensity of the LEDs based on the measured LEDs' intensity. Thus, there is no suggestion or the motivation to make a proposed modification.

In conclusion, Applicants maintain that (1) the cited prior art does not teach or suggest all limitations of claim 22 and (2) no motivation or suggestion to combine the teachings has been presented, or, more importantly, exists in the references. Therefore, it is respectfully submitted that the rejection of claim 22 is in error.

VIII. CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that Claims 1-4, 7-14, and 17-22 are in condition for allowance. Appellants respectfully request the Board of Appeals to reverse the rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Scott A. McCollister", is written over a horizontal line.

Scott A. McCollister, Reg. No. 33,961  
Marina V. Zalevsky, Reg. No. 53,825  
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP  
1100 Superior Avenue – Seventh Floor  
Cleveland, Ohio 44114-2579  
Telephone: (216) 861-5582

**CLAIMS APPENDIX**

**CLAIMS INVOLVED IN THE APPEAL:**

1. A signaling control device apparatus comprising:  
a light source including at least one LED, the light source having a light emitting surface;  
at least one sensor set to detect an external light load directed to the light emitting surface and generate a control signal indicative of a presence of the light load;  
and  
an electrical control system for receiving the control signal indicative of the presence of the light load and triggering an increase in current being supplied to the at least one LED in response to the received control signal which increased current is being maintained for at least while the light load is present.
2. The apparatus as set forth in claim 1, wherein the at least one sensor includes a photodiode.
3. The apparatus as set forth in claim 1, wherein the at least one LED and the at least one sensor are disposed on the printed circuit board.
4. The apparatus as set forth in claim 1, wherein the at least one sensor is positioned in a location remote from the printed circuit board.
- 5-6. (Canceled)

7. The apparatus as set forth in claim 1, wherein the current is continuous.
8. The apparatus as set forth in claim 1, wherein the current is pulsing.
9. The apparatus as set forth in claim 8, wherein the current is raised by pulsing the current at a frequency higher than visually perceivable.
10. The apparatus as set forth in claim 1, wherein the at least one sensor detects a magnitude of the light load and wherein the control system receives a control signal indicative of a value of the magnitude of the load and generates an increased current to be supplied to the at least one LED in proportion to the load magnitude.
11. A method of controlling a signaling device, the method comprising:
  - providing a light source including at least one LED, the light source having a light emitting surface;
  - setting at least one sensor to detect an external light load directed to the light emitting surface;
  - in response to detecting a presence of the light load, generating a control signal indicative of detecting the light load;
  - receiving the control signal by an electrical control system;
  - triggering an increase in current being supplied to the at least one LED in response to receiving the control signal; and
  - maintaining the elevated current for at least while the light load is being present.

12. The method as set forth in claim 11, wherein the at least one sensor includes a photodiode.

13. The method as set forth in claim 11, further including:  
mounting the at least one LED on a printed circuit board; and  
arranging the at least one sensor on the printed circuit board.

14. The method as set forth in claim 12, further including:  
mounting the at least one sensor in a location remote from the printed circuit board.

15-16. (Canceled)

17. The method as set forth in claim 11, further including:  
one of supplying a continuous current and a pulsing current.

18. The method as set forth in claim 17, wherein the current is raised by pulsing the current at a frequency higher than visually perceivable.

19. The method as set forth in claim 11, further including:  
detecting a magnitude of the light load; and  
generating an output control signal indicative of a value of the light load magnitude.

20. The method as set forth in claim 19, further including:

receiving the magnitude value by the electrical control system; and  
supplying the elevated current to the at least one LED, the elevated current  
being proportionate to the detected light load magnitude.

21. The method as set forth in claim 20, further including:  
continually adjusting a value of the elevated current based on the detected light  
load magnitude.

22. The method as set forth in claim 14, further including:  
positioning the signaling device on a sharp bend; and  
orienting the remotely positioned sensor along the bend towards a direction of  
the external light load.



**EVIDENCE APPENDIX**

A copy of each of the following items of evidence relied on by the Appellant  
[and/or the Examiner] is attached:

NONE

**RELATED PROCEEDINGS APPENDIX**

Copies of relevant decisions in the following related proceedings are attached:

NONE